

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
15 September 2005 (15.09.2005)

PCT

(10) International Publication Number  
**WO 2005/085170 A1**

(51) International Patent Classification<sup>7</sup>: **C07C 66/02**,  
A61K 31/335, 31/122, 31/192, 31/235, C07D 307/12,  
309/10

(74) Agent: **GILL JENNINGS & EVERY**; Broadgate House,  
7 Eldon Street, London EC2M 7LH (GB).

(21) International Application Number:  
PCT/GB2005/000832

(22) International Filing Date: 4 March 2005 (04.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0404953.2 4 March 2004 (04.03.2004) GB

(71) Applicant (for all designated States except US): **ARAKIS LTD.** [GB/GB]; Chesterford Research Park, Little Chesterford, Saffron Walden, Essex CB10 1XL (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BAXTER, Andrew, Douglas** [GB/GB]; Arakis Ltd., Chesterford Research Park, Little Chesterford, Saffron Walden, Essex CB10 1XL (GB). **WALMSLEY, Andrea** [GB/GB]; Arakis Ltd., Chesterford Research Park, Little Chesterford, Saffron Walden, Essex CB10 1XL (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

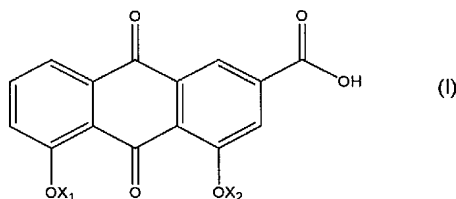
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ESTER DERIVATIVES OF RHEIN AND THEIR THERAPEUTIC USE



(57) Abstract: Compounds that may have anti-inflammatory activity are of general formula (I); wherein X<sub>1</sub>, is H or COR<sub>1</sub>, and X<sub>2</sub> is H or COR<sub>2</sub> but X<sub>1</sub>, and X<sub>2</sub> are not both H; R<sub>1</sub> and R<sub>2</sub> are the same or different and are each C<sub>1-4</sub> alkyl substituted with R<sub>3</sub>, or a four to seven-membered ring which can be optionally substituted with R<sub>8</sub> and can contain one or more additional heteroatoms selected from O, S(O)<sub>n</sub> and NR<sub>9</sub>; is R<sub>3</sub> is F, CF<sub>3</sub>, OR<sub>4</sub>, NR<sub>5</sub>R<sub>6</sub> O, S(O)<sub>n</sub> R<sub>7</sub>; R<sub>4</sub>, R<sub>5</sub> and R<sub>6</sub> are the same or different and are each H or C<sub>1-4</sub> alkyl optionally substituted with R<sub>3</sub>, or NR<sub>5</sub>R<sub>6</sub> is a C<sub>4-6</sub> heterocycloalkyl ring containing one or more heteroatoms selected from O, NR<sub>8</sub> and S(O)<sub>n</sub>; each n is 0-2; R<sub>7</sub> is C<sub>1-4</sub> alkyl; R<sub>8</sub> is as defined for R<sub>3</sub> or C<sub>1-4</sub> alkyl optionally substituted with R<sub>3</sub> or halogen; and R<sub>9</sub> is H or C<sub>1-4</sub> alkyl; or a salt, solvate or hydrate thereof.

WO 2005/085170 A1